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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TON, ANTHONY T

ART UNIT PAPER NUMBER

2661

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/749,178

Applicant(s)

KRISHNAMURTHY ET AL.

Examiner

Anthony T Ton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTIONS

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-8 and 24-28** are rejected under 35 U.S.C. 102(b) as being anticipated by **Liang et al.** (US Patent No. **5,781,529**) hereinafter refers to as **Liang**.

a) **Regarding to Claim 1: Liang disclosed** a method for diagnosing a failure in a network switching device comprising:

receiving a data packet containing a debug information element (IE) at the network switching device (*see Fig. 7A: steps 102, 106 and 152; and col.3 lines 12-19: DTL IE (debug IE)*);

extracting the debug IE from the data packet (*see Fig. 7A: step 152*); and

performing at least one diagnostic function on the network switching device in response to information contained in the debug IE (*see col.3 lines 20-39: the returned information can then be used for diagnostic purposes; col.2 lines 57-65; and col.11 lines 44-49*).

b) **Regarding to Claim 2: Liang further disclosed** the method further comprising communicating results of said at least one diagnostic function from the network switching device to a selected end point connected to the network switching device via a communications link (*see col.11 lines 36-49: thereby providing useful diagnostic information in the situations where the routing fails*).

c) **Regarding to Claim 3: Liang further disclosed** the debug IE is embedded in a connection-management message (*see col.3 lines 5-12: the node inserts (embed) a desired designated transit list as an information element (debug IE) of the setup message (connection-management message)*)).

d) **Regarding to Claim 4: Liang further disclosed** the debug IE is formatted so as to be propagated transparently across network switching devices that are not configured to recognize the debug IE (*see col.4 lines 16-31: The routing methods and systems of the invention which utilize DTLs clearly eliminate the need for determining routes at intermediate nodes*).

e) **Regarding to Claim 5: Liang disclosed** a method for diagnosing a failure in a network switching device comprising:

embedding a debug information element (IE) in a message (*see col.3 lines 5-12: inserts (embed) a desired designated transit list as an information element (debug IE) of the setup message (a message)*);

receiving results of at least one failure diagnostic function from a network switching device configured to respond to the debug IE (*see col.5 line 35-43*); and

wherein the debug IE is formatted so as to be propagated transparently across network switching devices that are not configured to recognize the debug IE (*see col.4 lines 16-31: The routing methods and systems of the invention which utilize DTLs clearly eliminate the need for determining routes at intermediate nodes*).

f) **Regarding to Claim 6: Liang further disclosed** the debug IE is embedded in a connection-management message (*see col.3 lines 5-12: the node inserts (embed) a desired*

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designated transit list as an information element (debug IE) of the setup message (connection-management message)).

g) **Regarding to Claim 7: Liang further disclosed** the debug IE includes information specifying a network switching device on which the failure diagnostic function is performed (*see col.6 lines 4-7; and col.3 lines 32-39*).

h) **Regarding to Claim 8: Liang further disclosed** the debug IE includes information identifying said at least one failure diagnostic function (*see col.7 line 48 – col.8 line 6*).

i) **Regarding to Claims 24-25 and 26-28:** the claimed subject matters of these claims are the same as that of claims 1-2 and 5-7, respectively. Therefore, the rejections to claims 1-2 and 5-7 would also apply to reject these claims for the same reasons as claim 1-2 and 5-7 because method steps can be programmed to automate a process. The resulting program is considered as firmware that the apparatus uses to perform the method steps.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 9-14 and 16-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Liang et al.** (US Patent No. 5,781,529) in view of **Or et al.** (US Patent No. 6,532,237) hereinafter referred to as **Liang** and **Or**, respectively.

a) **Regarding to Claim 9:** Liang disclosed a method for diagnosing a failure in connection comprising a plurality of nodes in a communication network (*see Fig.1*) comprising:
embedding a debug information element (IE) in a message (*see col.3 lines 5-12: inserts (embed) a desired designated transit list as an information element (debug IE) of the setup message (a message)*);

propagating the data packet to a plurality of switching devices corresponding to respective nodes along the connection path (*see the last sentence in Abstract and col.10 lines 42-64*);

extracting the debug IE from the data packet at selected switching device among said plurality of switching devices (*see Figs.7A and 7B: steps 152 and 124; and col.9 lines 25-33*);
and

Liang failed to explicitly disclose performing at least one diagnostic function on targeted switching devices among said selected switching devices in response to information contained in the debug IE.

Or disclosed such performing at least one diagnostic function on targeted switching devices among said selected switching devices in response to information contained in the debug IE (*see Fig.6; and col.10 lines 58-67*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such performing at least one diagnostic function on targeted switching devices among said selected switching devices in response to information contained in the debug IE, as taught by Or with the Liang, so that a failure in any communication group in an ATM network can be tested to detect the failure. **The motivation** for doing so would have been to provide for a system

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under test to execute a complete device software on a real physical device as opposed to a completely simulated network hosted by a computer platform (*see Or: ol.8 lines 41-49*). Therefore, it would have been obvious to combine Or with the Liang in the invention as specified in the claim.

b) Regarding to Claim 10: Liang further disclosed the debug IE is embedded in a connection-management message (*see col.3 lines 5-12: the node inserts (embed) a desired designated transit list as an information element (debug IE) of the setup message (connection-management message)*).

c) Regarding to Claim 11: Liang further disclosed the communication network comprises a plurality of Asynchronous Transfer Mode (ATM) switching devices (*see Fig.1*).

d) Regarding to Claim 12: Liang further disclosed the debug IE includes information specifying the targeted switching devices (*see col.6 lines 4-7; and col.11 lines 36-49*).

e) Regarding to Claim 13: Liang further disclosed the debug IE includes information identifying said at least one failure analysis function to be performed (*see col.7 line 48 – col.8 line 6*).

f) Regarding to Claim 14: Liang disclosed all aspects of this claim as set forth in claim 9.

Liang failed to explicitly disclose the selected switching devices correspond to switching devices supplied by a particular vendor.

Or disclosed such selected switching devices correspond to switching devices supplied by a particular vendor (*see col.1 line 67– col.2 line 2, customers of ATM network equipment some level of multi-vendor interoperability*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such selected switching devices correspond to switching devices supplied by a particular vendor, as taught by Or with the Liang, so that particular switching devices in a communications network can be specially installed by a particular vendor. **The motivation** for doing so would have been to meet the goal of the PNNI specifications to provide customers of ATM network equipment at some level of multi-vendor interoperability (*see Or: col.1 line 67-col.2 line 2*). Therefore, it would have been obvious to combine Or with the Liang in the invention as specified in the claim.

g) **Regarding to Claim 16: Liang further disclosed** the method further comprising communicating results of said at least one failure analysis function from the targeted switching devices to an operator of the targeted switching devices or the communication network (*see col.3 lines 31-39: originating node (operator)*).

h) **Regarding to Claim 17: Liang further disclosed** the results from said at least one failure analysis function are communicated to the operator of said targeted switching devices by passing the results to a data station (*see Fig.2 and col.5 lines 35-43: external workstation 50 (data station)*).

i) **Regarding to Claim 18: Liang further disclosed** the results are passed to the data station via at least one communication link that connects at least one of the targeted switching devices to the data station (*see Figs.1 and 2; and col.11 lines 6-35*).

j) **Regarding to Claim 19: Liang further disclosed** the results are passed to the data station by passing information from at least one of the targeted switching devices to another

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switching device along the connection path, said another switching device passing the results to the data station (*see Figs.1 and 2; and col.3 lines 20-39*).

k) Regarding to Claim 20: Liang further disclosed the targeted switching devices comprise switching devices along a specific portion of the connection path (*see Fig.2: 30; and col.11 lines 6-26*).

l) Regarding to Claim 21: Liang further disclosed the targeted switching devices comprise switching devices that are members of a logical peer group in an ATM hierarchy (*see Fig.1; and col.2 lines 4-26: a node outside the peer group, next higher level portion*).

m) Regarding to Claim 22: Liang further disclosed the network comprises a Private Network-Network Interface network (*see col.1 lines 47-52: PNNI*).

n) Regarding to Claim 23: Liang further disclosed the method further comprising:
identifying said plurality of switching devices comprising the communications path (*see Fig.1*);

identifying a switching device along the communications path corresponding to a failure point in the communications path (*col.3 lines 40-48*);

forwarding the message from switching device to switching device along the communication path until it reaches the switching device corresponding to the failure point (*see col.3 lines 1-39*); and

encoding the debug IE so as to instruct the switching device corresponding to the failure point to perform at least on failure diagnostic functions to identify why the switching device failed (*see Figs.3 and 5; and col.8 lines 1-6; and col.11 lines 36-49*).

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5. **Claims 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Liang et al.** (US Patent No. **5,781,529**) in view of **Or et al.** (US Patent No. **6,532,237**) as applied to claims 9 and 14 above, and further in view of **Eriksson et al.** (US Patent No. **6,243,384**) hereinafter refers to as **Eriksson**.

Liang disclosed all aspects of this claim as set forth in claims 9 and 14.

Liang further disclosed the debug IE is encoded in the data packet such that it is passed along (*see col.4 lines 16-31: The routing methods and systems of the invention which utilize DTLs clearly eliminate the need for determining routes at intermediate nodes*).

Liang failed to explicitly disclose the debug IE is encoded in the data packet such that it is dropped by switching devices at the nodes of the connection path that are not supplied by the particular vendor.

Eriksson disclosed such debug IE is encoded in the data packet such that it is dropped by switching devices at the nodes of the connection path that are not supplied by the particular vendor (*see col. 8 lines 45-52, the result returned by table handling unit 60 from a routing test (the debug IE) can be either of the following depending on the circumstances: a terminating case with a port ID (the debug IE is dropped)*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such debug IE is encoded in the data packet such that it is dropped by switching devices at the nodes of the connection path that are not supplied by the particular vendor, as taught by Eriksson with the Liang, in order to enable PNNI protocol in a plurality of switching nodes of an ATM communication network. **The motivation** for doing so would have been to provide an

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integration to multi-vendor ATM switches in the same network. Therefore, it would have been obvious to combine Eriksson with the Liang in the invention as specified in the claim.

Response to Arguments

6. Applicants' arguments filed on 6/18/2004 with respect to **claims 1-28** have been considered but are moot in view of the new ground(s) of rejection.


Examiner Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Anthony T Ton** whose telephone number is **571-272-3076**. The examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Ken Vanderpuye** can be reached on **571-272-3078**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-3076**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully submitted,

by : 
Anthony T. Ton
Patent Examiner
October 25, 2004


PHIRIN SAM
PRIMARY EXAMINER